

thither, but every where between t and c , many of these rays will get through the base and be refracted; and the same is to be understood of the meanly refrangible rays on either side of the point r . Whence it follows, that the base of the Prism must every where between t and B , by a total reflexion of all sorts of rays to the Eye, look white and bright. And every where between p and C , by reason of the transmissiō of many rays of every sort, look more pale, obscure and dark. But at r , and in other places between p and t , where all the more refrangible rays are reflected to the Eye, and many of the less refrangible are transmitted, the excess of the most refrangible in the reflected Light will tinge that Light with their Colour, which is violet and blue. And this happens by taking the line Cpr tB any where between the ends of the Prism HG and EI .

PROP. IX. PROB. IV.

By the discovered Properties of Light to explain the Colours of the Rain-bow.

This Bow never appears but where it Rains in the Sun-shine, and may be made artificially by spouting up Water which may break aloft, and scatter into Drops, and fall down like Rain. For the Sun shining upon these Drops certainly causes the Bow to appear to a Spectator standing in a due position to the Rain and Sun. And hence it is now agreed upon, that this Bow is made by refraction of the Sun's Light in Drops of falling Rain. This was understood by some of the Ancients, and of late more fully discovered and explained by the Famous
Antonius

Antonius de Dominis Archbishop of *Spilato*, in his Book *De Radiis Visus & Lucis*, published by his Friend *Bartholus* at *Venice*, in the Year 1611, and written above twenty Years before. For he teaches there how the interior Bow is made in round Drops of Rain by two refractions of the Sun's Light, and one reflexion between them, and the exterior by two refractions and two sorts of reflexions between them in each Drop of Water, and proves his Explications by Experiments made with a Phial full of Water, and with Globes of Glass filled with Water, and placed in the Sun to make the Colours of the two Bows appear in them. The same Explication *Des-Cartes* hath pursued in his *Meteors*, and mended that of the exterior Bow. But whilst they understood not the true origin of Colours, it's necessary to pursue it here a little further. For understanding therefore how the Bow is made, let a Drop of Rain or any other spherical transparent Body be represented by the Sphere $BNFG$, described with the Center C , and *Fig. 14.* Semi-diameter CN . And let AN be one of the Sun's rays incident upon it at N , and thence refracted to F , where let it either go out of the Sphere by refraction towards V , or be reflected to G ; and at G let it either go out by refraction to R , or be reflected to H ; and at H let it go out by refraction towards S , cutting the incident ray in Y ; produce AN and RG , till they meet in X , and upon AX and NF let fall the perpendiculars CD and CE , and produce CD till it fall upon the circumference at L . Parallel to the incident ray AN draw the Diameter BQ , and let the sine of incidence out of Air into Water be to the sine of refraction as I to R . Now if you suppose the point of incidence N to move